

THE MINERAL INDUSTRY OF UNITED KINGDOM

By Harold R. Newman¹

As a result of a rather complex geologic history, the United Kingdom has been well endowed with mineral resources. Metallic ore deposits were typically small and of relatively high grade. Mining of nonferrous minerals, particularly copper and tin, has been ongoing since the Bronze Age. Mine production of nonferrous minerals has been declining for the past 20 years as deposits were depleted. Although the exploitation of nonferrous minerals has become less significant, the processing of these minerals is the basis of a large and economically important industry. Because most ore bodies have been exhausted, the industry requires imports to satisfy its metallurgical requirements.

The industrial minerals sector has provided a significant base for expanding the extractive industries and, in recent years, represented a shift in balance from the metallic mineral sector. United Kingdom companies have a substantial interest, both domestic and foreign, in the production of industrial minerals, such as aggregates, ball clay, china clay (kaolin), and gypsum.

The offshore United Kingdom sector of the North Sea Oilfield, in its 30th year of activity, continued to be a significant player in the international oil and gas sector. As a result, the country has become a base for international oil companies and a major energy supplier to other countries.

Government Policies and Programs

The development and working of mineral deposits are subject to laws and regulations dating back to 1948 when the Town and Country Planning Act of 1947 introduced general planning control over the development of land. The current statute is the 1971 Act, as amended, which consolidates all earlier planning legislation and has been amended by various statutes. Mineral development is specifically addressed in the Town and Country Planning (Minerals) Regulations, 1971, and the Town and Country Planning (Minerals) Act, 1981. Minerals were defined in section 209 of the 1971 Act to include all minerals and substances in or under land of a kind ordinarily worked for removal by underground or surface workings, except it does not include peat cut for purposes other than for sale.

Mineral rights to mineral fuels such as coal, petroleum, and uranium, belong to the state. Formerly, British Coal Corp. (BC) controlled almost all the mineral rights to the national coal reserves. This control now rests with The Coal

Authority, which is authorized to license open pit and underground mines to the private sector subject to restrictions on size and the payment of royalty on the amount of coal produced.

Most other mineral rights in Great Britain are privately owned. The exception is gold and silver, the rights to which are vested in the Royal Family and are referred to as Crown Rights. A different situation regarding mineral rights applies to Northern Ireland where, under the Mineral Development Act (Northern Ireland), 1969, the right to work minerals and the right to license others to do so is vested in the state, as opposed to private ownership.

Currently, there is no national registry for mineral rights in the United Kingdom, except for hydrocarbons. This has created problems and is a matter of concern for the mining industry. Locating current owners of mineral rights on some properties can be a costly and time-consuming process.

Production

The significant event of 1994 was the passage of the Coal Industry Act of 1994, which allowed the government to set up a new agency, The Coal Authority, and authorized the privatization of BC. This was completed in December 1994. BC had been in the Government sector since 1947, when the industry was nationalized. BC consisted of six underground mining groups and the Opencast Executive, which was responsible for open pit mining. BC owned most of the coal reserves in the country and licensed and collected royalties from the privately owned mines. At yearend, 22 underground mines and 32 open pit mines were in production. Open pit coal production continued strongly. In underground coal operations, production decreased as reserves were depleted even though overall productivity increased almost 17%.

The steel sector's operations showed a moderate improvement as the demand for steel increased. British Steel (BS) was reportedly utilizing 76% of its production capacity. Production of tin concentrate continued from the one remaining tin mine in Cornwall.

Production of crude petroleum increased as redevelopment of the areas affected by the Piper Alpha drilling rig disaster and the gas explosion on the Cormorant A drilling platform were completed. (*See table 1.*)

Trade

The United Kingdom has shifted from being a net exporter of goods as recently as 1986 to being a net importer. Part of the reason for the weaker export performance has been problems in the United Kingdom sector of the North Sea Oilfield. Other contributing factors were adverse currency exchange rates with trading partners and a petroleum surplus. The United Kingdom foreign trade is dominated by petroleum.

It was expected that the economy would experience a slow rate of growth and gradually move out of a recession. This could cause the demand for imported consumer goods to increase.

Structure of the Mineral Industry

The Department of Trade and Industry (DTI) has the responsibility to ensure a continuing supply of minerals for the country's industry. DTI's overview includes all nonenergy, nonconstruction minerals, including metallic ores and such industrial minerals as barite, china clay (kaolin), fluorspar, high-grade limestone, potash, salt, and silica sand.

The Department of Energy (DOE) was formerly responsible for mineral fuels that included coal, natural gas, and petroleum, and also for issuing licenses for the exploration, appraisal, and production of natural gas and petroleum. The responsibility for these DOE functions was absorbed by DTI. A new Metals and Minerals Branch was formed to oversee these activities.

DOE remains responsible for minerals used in the construction industry. These include aggregates, brick and brick clay, cement and its raw material, dimension stone, gypsum for plaster, and sand and gravel. Both State and privately owned corporations produce minerals and mineral-based products. State ownership was mostly in the mineral fuels and nuclear power industry.

In 1993, direct employment in the mineral industry, including quarrying, was about 100,000 workers. (*See table 2.*)

Commodity Review

Metals

Aluminum.—Of the four primary aluminum smelters in the United Kingdom, three are owned and operated by British Alcan Aluminium Ltd. The fourth smelter, operated by Anglesey Aluminium Ltd., is 51% owned by RTZ Corp. of the United Kingdom, and 49% owned by Kaiser Aluminum and Chemical Corp. of the United States. All of the aluminum smelters depend on imported alumina for feedstock. British Alcan's bid for the Northeast Regional Coal Co., near its coal-fired Lynemouth smelter, was not accepted.

The secondary aluminum metal industry in the country treats recycled aluminum and low-grade aluminum scrap,

such as swarf. The main consuming sector for secondary aluminum ingot is the automotive industry.

Gold.—Activities in gold exploration and development in the United Kingdom decreased in 1994. Northern Ireland, Scotland, and Wales continued as the three main areas of concentration by companies. Scotland was the most active area with several exploration licenses in effect.

Ennex International PLC's Cononish project near Tyndrum, about 96 kilometers (km) north of Glasgow, Scotland, received planning permission from the Sterling District Council. The project was to undergo final review by the Secretary of State for Scotland. Ennex had filed a planning application that specified an underground mine, supported by surface facilities, and production of about 500 metric tons per day (mt/d) using shrinkage and blasthole mining methods. Initial access would be by a 1,000-meter-long adit. Gold would be recovered both in concentrate and doré. The capital cost was estimated by Ennex to be \$20 million with a construction time of 1 year after approval of the planning application.

The deposit was estimated to contain 514,000 metric tons (mt) of ore with an average grade of 9.4 grams per metric ton (g/mt) gold and 52.9 g/mt silver. The company was continuing a drilling program to locate additional ore zones at depth and to the west of the project.

Omag Minerals Ltd. applied for planning permission for its open pit operation at Omag, Northern Ireland. The two-part inquiry concluded in November, and the Commission to the Inquiry was expected to send its recommendation to DOE by mid-1995.

Drilling and trenching on a mineralized quartz vein reportedly outlined estimated reserves of 350,000 mt of ore with a grade of about 8 g/mt of gold and 29 g/mt of silver. Omag reported that this quantity was considered sufficient for about 7 years of production.

Iron and Steel.—Production of iron ore was limited to a small amount of hematite ore mined by Egremont Mining Co. at the Florence Mine in Cumbria. Production of ironstone ceased after 1992. Primary steel production was based on imported iron ore, mainly from Australia and Brazil.

BS's integrated steelworks were producing about the same level as last year. BS reported this was because of moderate steel demand and stiff competition in international markets where a sizable percentage of its products are sold. The U.S. Department of Commerce imposed a preliminary dumping duty of 71.84% on rail imports from BS. If this duty is upheld, it would seriously affect the export of rails by BS to the United States. This business amounts to about 1% of BS's general steels division's total sales.

Lead and Zinc.—MIM Holdings (UK) Ltd. purchased the Avonmouth lead-zinc smelter from Pasmenco Ltd. for about \$72 million. The Avonmouth plant is the world's largest Imperial Smelting Process (ISP) smelter. The plant has a

capacity of 55,000 metric tons per year (mt/a) of lead and 120,000 mt/a of zinc. MIM also has a joint-venture interest in an ISP smelter in Germany.

The purchase of the Avonmouth plant could provide another in-house outlet for the bulk lead-zinc concentrates produced from MIM's Mount Isa/Hilton complex in Australia.

Tin.—Carnon Consolidated Tin Mines Ltd.'s South Crofty Mine, near Camborne, was sold to the Crew Group of Canada. South Crofty produces about 180,000 mt/a of ore averaging 1.33% tin. The ore is sent to Carnon's Wheal Jane mill near Truro for treatment which produces a 58% grade of tin concentrate. Most of the concentrate was exported to Malaysia.

Industrial Minerals

DOE has made proposals to limit the growth of land-based quarrying in England and Wales by 20% during the next 20 years. The proposals included the expansion of coastal superquarries, such as Foster Yoeman Ltd.'s Glensanda quarry at Oban, Scotland, and the use of recycled material in construction.

Redlands Aggregates Ltd. requested planning permission to develop a coastal superquarry at Lingarabay, Scotland. Redlands estimated the proposed quarry has reserves of 600 million metric tons (Mmt) of anorthosite. Capacity of the proposed project would be about 1 million metric tons per year (Mmt/a) and rising over a number of years to between 5 Mmt/a and 12 Mmt/a. The planning inquiry was expected to be completed in mid-1995.

Cement.—There were signs that the recession in the building and construction industry, which severely restricted raw material demand, appeared to be over. An upturn in house building suggested that the concrete block market may be one of the first to recover. The block market has been the largest outlet for concrete products.

Castle Cement Ltd., with more than 25% of the domestic market, reportedly was operating at nearly full capacity. Castle has taken steps to improve operational efficiency through rationalization, cost reduction, and increased flexibility and has centralized its activities with the development of a national, rather than a works-based, management structure.

Clays.—The United Kingdom was the leading world producer and exporter of ball clay, as well as the world's largest exporter and second-largest producer, after the United States, of kaolin (china clay). Watts, Blake, Bearne & Co. PLC (WBB) was the country's largest producer of ball clay. English China Clays PLC (ECC) was the largest producer of kaolin in the United Kingdom and one of the major producers worldwide.

All mining of ball clay was carried out in Dorset and

Devon Counties in the southwest area of the United Kingdom. WBB Devon Clays Ltd. is responsible for the ball clay operations of WBB. The division operated seven open pit mines and three underground mines that have a total combined output of 450,000 mt/a of crude ball clay.

ECC Ball Clays Ltd. is responsible for the ball clay operations of ECC. The division operates five quarries, three underground mines, and two open pit mines with a combined output of 450,000 mt/a of crude ball clay. Seventy percent of the output was exported.

ECC completed its rationalization and restructuring activities and was focusing its efforts on industrial minerals and construction materials, with the main emphasis on ball clay, kaolin, and aggregates. ECC operated 20 open pit kaolin mines, 18 of which are in Cornwall.

ECC International Ltd. operated three underground mines and five quarries in the Wareham Basin in Dorset; four quarries and one underground mine in the Bovey Basin in south Devon; and three open pit mines in the Petrockstowe Basin in north Devon. Total production was about 350,000 mt/a. Sixty-five percent of this production is from the Bovey Basin.

Fluorspar.—Fluorspar mining was concentrated in Derbyshire from the Southern Pennine deposit, and the major producer was Laporte Industries PLC. Laporte operates two underground mines and one open pit mine. The latest operation, the Milldam Mine, came on-stream in 1992. The company expected the mine to produce 85,000 mt/a of ore grading 45% to 50% CaF₂. The ore is processed at Laporte's Cavendish Mill near Sheffield.

The only other major producer was Swan Industrial Minerals Ltd., working the open pit fluorspar-barite deposits acquired from the former Deepwood Mining Co. Ltd., which went into receivership at yearend 1993.

Gypsum.—British Gypsum Ltd. (BG), the subsidiary of BPB Industries PLC, was the major producer of gypsum in the United Kingdom. The company has mines in Cumbria, Leicestershire, Nottinghamshire, Staffordshire, and Sussex that produce about 3 Mmt/a of gypsum. With few exceptions, all of this material goes to supply the domestic market.

BG has completed its \$187-million capital investment program. This included a new mine and a 600,000-mt/a plant at Barrow-upon-Soar and refurbishing plants at Robertsbridge and Kirkby Thore. BG closed its Gotham and Fauld plasterboard plants and commenced construction on facilities at Kirkby Thore and East Leake to process desulfured gypsum from power stations.

Potash.—Cleveland Potash Ltd. (CPL) operated the Boulby Mine in Yorkshire and was the only potash producer in the United Kingdom. The company also mined rock salt, as a coproduct, from an underlying seam in the Boulby Mine. Production was about a 2:1 potash-to-salt ratio. CPL was continuing with a \$10-million capital investment program to

improve recovery at the Boulby Mine.

Salt.—Imperial Chemical Industries PLC (ICI) was the largest salt producer in the United Kingdom. ICI operated the Winsford Mine in Cheshire, one of the largest underground mines in the United Kingdom. Rock salt was mined at the Winsford Mine, which has a capacity to produce 2 Mmt/a. ICI also produced vacuum salt at its Weston Point facility, the world's largest single-stream vacuum evaporation operation with a capacity of 1.1 Mmt/a. Brine salt was produced at the Holford, Preesal, and Saltholme facilities for the internal manufacture of chlorine, caustic soda, and synthetic soda ash.

British Salt Ltd. was the major white salt producer. The company produced salt, from solution mining, at the Warmington brine field. This was processed at its Middlewich plant, which has a capacity of 825,000 mt/a of undried vacuum and pure dried vacuum salt.

Irish Salt Mining & Exploration Co. Ltd. produced rock salt from an underground mine at Kilroot, in Northern Ireland, which has a capacity of 300,000 mt/a. The company was an important producer of deicing salt.

Sand and Gravel.—TMC Pioneer Aggregates Ltd., a joint-venture operation between Pioneer Aggregates (UK) Ltd. and TMC Ltd. was developing what was expected to be the largest sand and gravel operation in the United Kingdom. Production was planned to be between 1 Mmt/a and 2 Mmt/a. The quarry, at Boreham, Essex, covers 480 hectares (ha) with estimated reserves of 34 Mmt. Pioneer Aggregates owned 26 quarries in the United Kingdom.

Slate.—Most of the slate mining activities in the United Kingdom was in north Wales, with additional mining operations in Cornwall and the Lake District. Penrhyn Quarries Ltd., Bangor, north Wales, was the largest slate operation, producing around 25,000 mt/a. of roof slate. The quarry, measuring 2415 meters (m) by 805 m, was considered to be the world's largest slate quarry. Penrhyn produced more than one-half of the United Kingdom's entire production of roofing slate. The company exported about two-thirds of its production.

Talc.—Alex Sandison & Sons Ltd. was the only producer of talc in the United Kingdom. Sandison produced from 12,000 to 14,000 mt/a of low-grade talc, containing up to 50% magnesium oxide, from an open pit operation at Unst, Shetland Islands. The ore was processed by Fordamin Co. Ltd at its plants at Yate and Stockton. The ore is ground to 300 mesh and is used in fertilizers, ceramics, and general fillers.

Mineral Fuels

Coal—At the end of 1994, 22 underground mines were operated by BC compared with 50 the previous year. Another

45 open pit mines were operated by contractor companies.

Since the 1984-85 coal strike, BC has made substantial progress in improving its competitiveness: operating costs have been reduced by one-third, and output has risen to more than 5 mt per worker-shift. The total work force, in 1993, was reduced to about 60,000 from almost 300,000 in 1980. Overall productivity in BC's mines was 17% higher as compared with that of 1990. Although productivity has shown an impressive rise, total production, as a result of reserve depletion, has been declining since 1983.

All the mines of the Selby Complex, Yorkshire, are now in full production. The five separate mines are North Selby, Riccall, Stillingfleet, Whitemoor, and Wistow. Each of the five mines, with total production targeted at more than 11 Mmt, sends its output through two spine tunnels to a drift outside the extraction area. This was the largest such project in Europe. The Wistow Colliery was the first in Europe to mine more than 100,000 mt of coal in a workweek.

BC negotiated a 5-year contract to supply coal to the newly formed electric utilities, National Power and PowerGen. BC would supply 40 Mmt/a of coal for the first 2 years, and 30 Mmt for the remaining 3 years. The electricity industry accounted for 84% of BC's total sales. Coal contributed about 30% toward primary energy consumption.

Natural Gas.—A group of seven petroleum and natural gas companies were studying the feasibility of a natural gas interconnection between the United Kingdom and continental Europe. The Government had indicated its support for the project in the context of the future integration of European trade in natural gas. The 243-km long, \$425-million, 15-billion-cubic-meters-per-year (m³/a) capacity natural gas pipeline would be built from the Bracton terminal, Norfolk, to Zeebrugge, Belgium. The first natural gas likely to enter the proposed pipeline would come from the Britannia field jointly operated by Chevron and Conoco. Britannia, slated for production in 1997, was the largest United Kingdom offshore gas field being developed.

Petroleum.—The 15th Licensing Round took place in 1994 with 29 blocks in the United Kingdom sector of the North Sea oilfields awarded by DTI to a consortium of 34 companies. The 16th round was announced in November 1994 and bids for 164 blocks were to be submitted to DTI by March 1995.

There were 62 offshore exploration and 21 appraisal wells drilled. A reduction in exploration activity resulted from changes in the United Kingdom tax regime, in particular owing to the petroleum revenue tax (PRT) and abolition of cross-field PRT relief, and declining oil prices.

The United Kingdom has an onshore producing oilfield, the Wytch Farm Field in Dorset, estimated to contain reserves of 400 million barrels. Exploration and drilling by BP confirmed that the field extends offshore under Poole Bay. The extent of additional reserves had not been reported at yearend.

Permission was granted for exploration drilling in the grounds of Windsor Castle, which has been regarded as potentially one of the country's largest on-shore fields.

Infrastructure

Rail and trucking transportation is well developed and excellent. The state-owned British Railways (BR) operates a 16,629-kilometer (km), 1.435-m standard-gauge system with 4,205 km of electrified and 12,591 km of double or multiple track. In addition standard-gauge and narrow-gauge lines are privately owned and operated. Northern Ireland Railways (NIR) operates a 332-km, 1.600-m gauge system with 190 km of double track.

All three major steel-producing areas are on or near tidewater. Petroleum refineries are likewise on the coast. The major cargo ports are Bristol, Liverpool, London, and Southampton in England; Glasgow in Scotland; Cardiff and Milford Haven in Wales; and Belfast in Northern Ireland.

Transportation, not only in the United Kingdom but also in the whole of Europe, changed significantly with the completion and operation of the Channel Tunnel. The tunnel, referred to as the "Chunnel", has been constructed underneath the English Channel and was undergoing trial runs by trains carrying freight. The Channel tunnel connects Folkestone, England, and Coquelles, near Calais, France. From these terminals, people drive their cars and trucks onto trains that transport them 49 km to the other side in about one-half hour. Everything transported through the tunnel will move by rail. The Channel Tunnel, linking the two countries, was expected to be a vital component of the European single market concept.

Outlook

The United Kingdom is a significant player in the world mining and mineral processing industries. This is more the result of an extensive range of organizations in the country, with various interests in the mineral industry internationally, rather than production from the domestic industry. This is expected to continue.

Exploration is expected to continue onshore and offshore. Onshore exploration activities will be mainly directed toward precious metals. Offshore exploration interest will continue to be focused on North Sea areas, particularly the area west of Shetland Islands, the Central North Sea and the Southern Gas Basin.

The Government publication "UK Strategy for Sustainable Development" is expected to be a significant framework for the development of mineral resources. There will be further

efforts to raise the level of environmental management and to maximize the best use of natural resources, including use of recycled materials and alternate sources of energy.

¹Text prepared June, 1995

²Where necessary, values have been converted from pounds sterling (£) to U.S. dollars (\$) at the rate of £1.00=\$1.56, the average rate during 1994.

Major Sources of Information

British Geologic Survey
Keyworth, Nottingham NG125GG
United Kingdom

Central Statistics Office
Great George Street
London, SW1P 3AQ
United Kingdom

Department of Economic Development (Northern Ireland)
Belfast BT1 3AJ
Northern Ireland

Department of Energy
1 Palace Street
London SW1E 5HE
United Kingdom

Department of Environment
2 Marsham Street
London SW1P 3EB
United Kingdom

Department of Trade and Industry
123 Victoria Street
London SW1E 6RB
United Kingdom

Major Publications

Annual Reports of various companies.

British Geologic Survey, Keyworth:
United Kingdom Mineral Yearbook, annual.

Central Statistics Office, London:
Annual Abstracts of Statistics, annual.
Monthly Digest of Statistics, monthly.
CSO Minerals, annual.

Department of Energy, London:
Digest of United Kingdom Energy Statistics, quarterly.
Energy Trends, monthly.

Department of Trade and Industry, London:
Overseas Trade Statistics of the United Kingdom, annual.
World Bureau of Metal Statistics, annual.
World Metal Statistics, monthly.

TABLE I
UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1990	1991	1992	1993	1994 e/
METALS					
Aluminum:					
Alumina from imported bauxite e/	115,000	110,000	120,000	105,000 r/	105,000
Metal:					
Primary	294,000	294,000	244,000	239,000	240,000
Secondary	121,000	163,000	252,000	274,000	275,000
Cadmium: Metal including secondary	438	449	383	458	400
Copper:					
Ore and concentrate, Cu content	955	294	--	--	--
Metal, refined:					
Primary	47,000	16,600	10,400	10,600	11,100 2/
Secondary	74,600	53,500	31,700	35,900	35,600 2/
Total	122,000	70,100	42,100	46,600	46,700
Iron and steel:					
Iron ore:					
Gross weight	55,300	59,400	30,900 r/	1,100 r/	1,000
Fe content	12,900	12,600	6,800	600	500
Metal:					
Pig iron thousand tons	12,300	11,900	11,500	11,500 r/	12,000 2/
Ferrous alloys, blast-furnace:					
Ferromanganese do.	144	178	137	45 r/	--
Steel, crude do.	17,900	16,500	16,200	16,700	17,400 2/
Rolled products do.	14,500	19,500	14,000	13,500 r/	14,000
Lead:					
Mine output, Pb content	1,380	1,020	1,000	1,000 r/	500
Metal:					
Smelter:					
Bullion from imported concentrate	42,700	40,300	42,200	45,200 r/	37,600 2/
Secondary (refined) e/ 3/	113,000	110,000	100,000	154,000 r/	100,000
Total e/	156,000	150,000	142,000	200,000 r/	138,000
Refined:					
Primary 4/	156,000	164,000	199,000	210,000	191,000 2/
Secondary 3/	174,000	147,000	148,000	154,000 r/	150,000 2/
Total e/	329,000	311,000	347,000	364,000 r/	341,000
Magnesium metal, secondary including alloys e/	900	800	800	500	500
Nickel metal, refined e/ 5/	26,800	29,000	28,000	28,000	28,000
Silver: Mine output, Ag content kilograms	1,500	565	--	--	--
Tin:					
Mine output, Sn content	3,390	2,330	2,040	2,230	1,900
Metal:					
Primary	6,100	1,660	--	--	--
Secondary (refined)	5,900	3,580	100	100	100
Zinc:					
Ore and concentrate, Zn content	6,670	1,080	--	--	--
Metal, smelter	93,300	101,000	96,800	102,000 r/	96,800 2/
INDUSTRIAL MINERALS					
Barite 6/	67,600	85,500	76,700	32,600 r/	40,000
Bromine	28,000	29,300	29,900	27,400	28,000
Cement, hydraulic thousand tons	14,700	12,300	11,000	11,200	11,500
Clays:					
Fire clay do.	892	867	572	479	500
Fuller's earth 7/ do.	205	189	189	187	150
Kaolin (China clay) do.	3,040	2,910	2,500	2,580	2,600
Ball clay and pottery clay e/ do.	820	729	740	746	750
Other, including shale e/ do.	17,000	13,000	12,000	12,000	10,000
Diatomite e/	240	220	120	200	200
Feldspar (china stone)	6,500	6,420	8,240	6,960 r/	6,500
Fluorspar, all grades 8/	118,000	77,900	76,100	70,300 r/	59,000
Gypsum and anhydrite e/ thousand tons	4,000	3,500	3,000	2,500 r/	2,500
Lime: Quicklime and hydrated e/ do.	2,800	2,800	2,500	2,500	2,500
Nitrogen: N content of ammonia do.	1,150	1,010	869	873 r/	900
Potash, K ₂ O equivalent	488,000	495,000	529,000	550,000 r/	580,000

See footnotes at end of table.

TABLE 1--Continued
 UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1990	1991	1992	1993	1994 e/	
INDUSTRIAL MINERALS--Continued						
Salt:						
Rock	thousand tons	1,100	1,640	1,500	1,200	1,200
From brine	do.	1,340	1,320	1,200	1,300	1,300
In brine, sold or used as such	do.	3,990	3,870	3,400	4,080 r/	4,000
Sand and gravel: e/						
Common sand and gravel	do.	116,000	97,900	88,900 2/	89,500 r/	90,000
Industrial sand	do.	4,300	3,900	3,620 r/	4,000	3,600
Sodium compounds, n.e.s.: Carbonate	do.	1,000	1,000	1,000	1,000	1,000
Stone:						
Crushed:						
Calcite e/	thousand tons	19	8	4	4	3
Chalk	do.	13,100	10,300	9,170	9,080 r/	9,000
Chert and flint	do.	14	5	--	--	--
Dolomite	do.	20,700	19,500	18,500	18,000 r/	18,000
Igneous rock	do.	57,400	53,800	48,600	49,200 r/	50,000
Limestone	do.	103,000	93,400	89,400	93,300 r/	90,000
Sandstone including ganister	do.	18,000	16,600	11,600	12,100 r/	12,000
Slate including fill	do.	359	293	326	462 r/	400
Total e/	do.	212,000	194,000	178,000	182,000 r/	179,000
Dimension:e/						
Igneous	do.	100	127	100	100	100
Limestone	do.	200	243	200	200	200
Sandstone	do.	200	200	200	200	200
Slate	do.	86	67	66	61	60
Strontium minerals		24,700	2,000	2,000	1,000	1,000
Sulfur, byproduct: e/						
Of metallurgy		64,000	65,000	60,000	72,000	70,000
Of petroleum refining		135,000	140,000	175,000	200,000	150,000
Total						220,000
Talc, soapstone, pyrophyllite		14,800	10,800	5,220	5,320	5,500
Titania e/ 9/		128,000 r/	84,200 r/	108,000 r/	85,400 r/	85,000
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Anthracite	thousand tons	1,950	1,860	2,040 r/	1,400 r/	1,000
Bituminous including slurries, fines, etc.	do.	92,400	92,300 r/	83,300	66,800 r/	56,200 2/
Lignite	do.	18	3	3	2	2
Total	do.	94,400	94,200 r/	85,300 r/	68,200 r/	57,200 2/
Coke:						
Metallurgical		7,520	7,010	6,400 r/	6,030 r/	6,000
Breeze, all types		186 r/	152	131 r/	61 r/	60
Fuel briquets, all grades e/		1,500	1,200	1,000	1,000	1,000
Gas, natural:						
Marketable 10/	million cubic meters	50,600	69,300	64,100	65,500 r/	69,700 2/
Marketed 11/	do.	45,800	55,300	50,200	52,800 r/	57,200
Natural gas liquids 12/	thousand 42-gallon barrels	41,800	51,400	35,300	40,700	53,200 2/
Petroleum:						
Crude 13/	do.	687,000	684,000	707,000	749,000	858,000
Refinery products:						
Liquefied petroleum gases	do.	18,800	19,300	18,500 r/	18,400 r/	18,700 2/
Naphtha including white spirit	do.	16,200	21,400	26,100 r/	23,100 r/	23,900 2/
Gasoline	do.	227,000	236,000	249,000 r/	253,000 r/	245,000 2/
Jet fuel	do.	60,300	56,300	61,500	66,700 r/	61,600 2/
Kerosene	do.	17,900	19,000	19,000	20,000	20,000
Distillate fuel oil	do.	175,000	194,000	191,000 r/	204,000 r/	203,000 2/
Residual fuel oil	do.	87,400	87,900	82,500	83,000	84,000
Lubricants	do.	6,830	6,810	8,140	8,200	8,200
Bitumen	do.	14,900	14,000	14,200	15,000	15,000

See footnotes at end of table.

TABLE 1--Continued
 UNITED KINGDOM: PRODUCTION OF MINERAL COMMODITIES 1/--Continued

(Metric tons unless otherwise specified)

Commodity	1990	1991	1992	1993	1994 e/
MINERAL FUELS AND RELATED MATERIALS--Continued					
Petroleum coke e/ thousand 42-gallon barrels	3,230	3,100	2,940	3,000	3,000
Petroleum wax e/ do.	315	291	488	500	500
Unspecified e/ do.	3,990	4,340	3,300	3,500	3,500
Refinery fuel and losses do.	44,800	45,700	42,500	42,000	42,000
Total e/ do.	676,000	709,000	720,000 r/	740,000 r/	728,000

e/ Estimated. r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown. Includes data available through Mar. 1995.

2/ Reported figure.

3/ Includes a small quantity of primary lead from domestic concentrate.

4/ Produced entirely from imported bullion and includes the lead content of alloys.

5/ Refined nickel and nickel content of ferronickel.

6/ Includes witherite.

7/ Salable product.

8/ Proportions of grades not available; probably about two-thirds acid grade.

9/ Sales.

10/ Methane, excluding gas flared or reinjected.

11/ Marketable methane, excluding that used for drilling, production, and pumping operations.

12/ Includes ethane, propane, butane, and condensates.

13/ Excludes gases and condensates.

TABLE 2
UNITED KINGDOM: STRUCTURE OF THE MINERAL INDUSTRY OF 1994

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Aggregate	ARC Ltd, (Hanson PLC, 100%) Foster Yoeman Ltd.	50 quarries in various locations Glensanda quarry at Oban	50,000 15,000
Aluminum, primary	British Alcan, Aluminium Ltd.	Ft. William, Kinlochleven, and Lynemouth	175
Do.	Angelesy Aluminium Ltd. (RTZ Corp. Ltd. 51%; Kaiser Aluminum and Chemical Corp., 49%)	Holyhead, Wales	113
Aluminum, secondary	Trent Alloys Ltd. (Cookson Group, 100%)	North Cave, Humberside	30
Do.	Deeside Aluminium Ltd.	Clwyd, Wales	45
Ball clay	Watts, Blake, Bearne and Co. PLC	Various operations in north and south Devon	500
Celestite	Bristol Minerals Co. Ltd.	Yate, Avon	30
Cement	Aberthaw and Bristol Channel Portland Cement Co. Ltd.	East Aberthaw, Glamorgan and Rhoose, Glamorgan	1,000
Do.	Blue Circle Industries PLC.	Main plants at Couldon, Dunbar, Hope, Northfleet, Weardale, and Westbury	11,000
Do.	Castle Cement Ltd. (Aker Norcem AS, 50%; Indus AB Euroc, 50% ;	Main plants at Ketton, Ribblesdale, Pades, and Pitstone	4,000
China clay (kaolin)	ECC Group PLC	Mines and plants in Devon	3,000
Copper	IMI Refiners Ltd.	Refinery at Walsall, West Midlands	80
Ferroalloys	British Steel PLC	Teesside, Cleveland	80
Do.	Murex Ltd.	Rainham, Essex	25
Do.	London and Scandinavian Metallurgical Co. Ltd.	Rotherham, South Yorkshire	30
Fluorspar	Weadale Fluorspar Ltd.	Mines in Derbyshire	50
Do.	Laporte Industries	Mill at Stoney Middleton, Mines in Derbyshire	70
Do.	British Gypsum Ltd.	Mines in Midlands, Cumbria and Sussex	3,500
Lead, refined	Britania Refined Metals Ltd.	Northfleet, Kent	165
Lead, secondary	H.J. Enthoven and Son Ltd. (Billiton (U.K.) Ltd., 100%)	Darley Dale, Derbyshire	60
Lead, smelter	MIM Holdings (U.K) Ltd.	Avonmouth, Avon	55
Natural gas	Amoco Ltd. British Petroleum Ltd. Esso (U.K.) Ltd., Phillips Petroleum Co. PLC, Shell (U.K.) Ltd.	North Sea gas fields	1,250 1/
Nickel, refined	INCO Europe Ltd. (INCO Ltd., Canada)	Clydach, Wales	30
Petroleum, crude	Amoco Ltd., British Petroleum Ltd., Chevron Ltd., Esso (U.K.) Ltd. Occidental Petroleum Co. Ltd., Shell (U.K.) Ltd. Texaco Ltd., Unocal, Inc.	North Sea oilfields	2.1
Petroleum, refined	British Petroleum Ltd., Conoco Ltd., Mobil Oil Co. Ltd., and others	11 refineries in various locations	2.3 2/
Platinum-group metals	Johnson Matthey PLC	Enfield (London) and Royston, Cambridgeshire	20
Potash	Cleveland Potash Ltd.	Boulby Mine, Yorkshire	500
Salt, rock	Imperial Chemical Industries PLC	Mines at Winsford, Cheshire	3,000
Do.	Irish Salt Mining and Exploration Co.	Carrick Fergus, Northern Ireland	300
Sand and gravel	TMC Pioneer Aggregates Ltd.	Chelmsford, Essex	1,000,000
Silica, sand	Hepworth Minerals and Chemicals Ltd.	Operations in Cambridgeshire, Cheshire, Humberside and Norfolk	6,000
Steel	British Steel PLC	4 intergrated steelworks in Gwent, Lanark, South Humberside and Cleveland	16,800
Talc	Alex Sandison and Son Ltd.	Unst, Shetland Islands	15
Do.	Shetland Talc Ltd. (Anglo European Minerals Ltd., 50%; Dalriada Mineral Ventures Ltd. 50%	Cunningsburg, Shetland Islands	35
Tin,ore	Carnon Consolidated Tin Mines Ltd.	South Crofty Mine, Cornwall	1,800
Titanium, sponge	Deeside Titanium Ltd.	Plant at Deeside, Clyde	5
Zinc, smelter	MIM Holdings (U.K.) Ltd.	Avonmouth, Avon	120

1/ Billion cubic feet per year.

2/ Million 42-gallon barrels per day.